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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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David A. Brown

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HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD

P.O. BOX 9133

CONCORD, MA 01742-9133

EXAMINER

HOM, SHICK C

ART UNIT

PAPER NUMBER

2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

09/733,629

Applicant(s)

BROWN, DAVID A.

Examiner

Shick C. Hom

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/5/07 has been entered.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

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the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-5, 7-9, and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grinberg et al. (5,384,568) in view of Tzeng (6,067,574).

Grinberg et al. disclose a method for updating a lookup table comprising the steps of providing access to a first subtree within a tree, the first subtree being accessed through a first pointer to a first subtree root node (see col. 11 line 56 to col. 14 line 24 which recite the technique of splaying tree and Fig. 14 which shows the tree consisting of node z 1403 and subtrees C 1406 and D 1407, whereby subtree C 1406 corresponds to the first subtree within the tree); a second subtree separate from the tree, the second subtree being accessed through a second pointer to a second subtree root node (see Fig. 14 the subtree B 1405 which corresponds to the second subtree separate from the tree 1403, 1406, 1407), while access is provided to the first subtree by the first pointer; and switching access to the second subtree by replacing the first pointer to the first subtree root node with the second pointer to the second subtree root node to update the tree by replacing the first subtree with the second subtree (see corresponding

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Fig. 16 whereby the second subtree B 1405 is switched to replace the first subtree C 1406 as shown in Fig. 16 by subtree B 1606 by replacing pointer).

Grinberg et al. disclose all the subject matter of the claimed invention with the exception of the set of routes being stored in the nodes of the subtrees as in claims 1, 5, 9, 13; wherein the number of routes in the first set of routes is less than or greater than the number of routes in the second set of routes as in claims 3-4, 7-8, 11-12; and wherein the first set of routes and the second set of routes include a longest prefix route for the destination address; wherein the destination address includes an IP Protocol address; wherein the second set of routes includes another route corresponding to the longest prefix route for another destination address; wherein the first set of routes and the second set of routes are associated with nodes at the bottom level of a subtree as in claims 14-17.

Tzeng the same or similar fields of endeavor teach that it is known to provide set of routes being stored in the nodes of the subtrees (see col. 2 lines 18-45, col. 2 line 64 to col. 3 line 17, and col. 3 line 63 to col. 4 line 23 which recite the IP routing lookup table having pointer to the root node of a tree, insertion and deletion of entries in the lookup table, and whereby the subtree begins at the root node of the tree,

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respectively as in claims 1, 5, 9, 13); wherein the number of routes in the first set of routes is less than or greater than the number of routes in the second set of routes (see Fig. 3 where the number of routes from node B is greater than the number of routes from node C as in claims 3-4, 7-8, 11-12); and wherein the first set of routes and the second set of routes include a longest prefix route for the destination address; wherein the destination address includes an IP Protocol address; wherein the second set of routes includes another route corresponding to the longest prefix route for another destination address; wherein the first set of routes and the second set of routes are associated with nodes at the bottom level of a subtree (see the abstract and col. 3 line 53 to col. 4 line 23 which recite the use of the destination address includes searching for the prefix having the longest match when compared to the destination address; and col. 1 lines 8-10 which recite the stored IP routing information as in claims 14-17).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide the set of routes being stored in the nodes of the subtrees; wherein the number of routes in the first set of routes is less than or greater than the number of routes in the second set of routes; and wherein the first set of routes and

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the second set of routes include a longest prefix route for the destination address; wherein the destination address includes an IP Protocol address; wherein the second set of routes includes another route corresponding to the longest prefix route for another destination address; wherein the first set of routes and the second set of routes are associated with nodes at the bottom level of a subtree as taught by Tzeng in the communications apparatus and method of Grinberg et al.

The set of routes being stored in the nodes of the subtrees; wherein the number of routes in the first set of routes is less than or greater than the number of routes in the second set of routes; and wherein the first set of routes and the second set of routes include a longest prefix route for the destination address; wherein the destination address includes an IP Protocol address; wherein the second set of routes includes another route corresponding to the longest prefix route for another destination address; wherein the first set of routes and the second set of routes are associated with nodes at the bottom level of a subtree can be implemented by storing set of routes in the nodes of the subtree and having number of routes in the first set of routes being less than or greater than the number of routes in the second set of routes which include a longest prefix route for the destination address; wherein the

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destination address includes an IP Protocol address; wherein the second set of routes includes another route corresponding to the longest prefix route for another destination address; wherein the first set of routes and the second set of routes are associated with nodes at the bottom level of a subtree of Tzeng in the subtrees and of Grinberg et al. The motivation for storing set of routes in the nodes of the subtree and having number of routes in the first set of routes being less than or greater than the number of routes in the second set of routes which include a longest prefix route for the destination address; wherein the destination address includes an IP Protocol address; wherein the second set of routes includes another route corresponding to the longest prefix route for another destination address; wherein the first set of routes and the second set of routes are associated with nodes at the bottom level of a subtree as taught by Tzeng in the communication method and apparatus of Grinberg et al. being that it provides an application whereby the technique of Grinberg et al. can function as designed.

5. Claim 2, 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grinberg et al. (5,384,568) and Tzeng (6,067,574) in view of Nakatsu et al. (5,787,151).



For claims 2, 6, and 10, Grinberg et al. and Tzeng discloses the method and apparatus described in paragraph 4 of this office action. Grinberg et al. and Tzeng discloses all the subject matter of the claimed invention with the exception of the step and means of deallocating the memory used by the first set of routes after switching access.

Nakatsu et al. from the same or similar fields of endeavor teach that it is known to provide the step and means of deallocating the memory used by the first set of routes after switching access (see col. 12 lines 13-29 which recite upon call termination, the manager deallocating the memory buffers to be available for use by other call flows). Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide the step and means of deallocating the memory used by the first set of routes after switching access as taught by Nakatsu et al. in the method and apparatus of Grinberg et al. and Tzeng. The step and means of deallocating the memory used by the first set of routes after switching access can be implemented by connecting the memory manager of Nakatsu et al. to the memory of Grinberg et al. and Tzeng. The motivation for using the memory manager as taught by Nakatsu et al. in the method and apparatus of Grinberg et al.

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and Tzeng being that it provides more efficiency for the system since the system can function using less memory by deallocating the memory no longer needed.

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ahuja et al. disclose a system and method for locating a route in a route table using hashing and compressed radix tree searching.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C. Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SH

*Seema S. Rao*  
SEEMA S. RAO 3/1/07  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600